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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,893	02/03/2004	Shihong Gary Song	67097-022	1084
26096 7590 02/15/2007 CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD SUITE 350 BIRMINGHAM, MI 48009			EXAMINER MORILLO, JANEL COMBS	
			ART UNIT	PAPER NUMBER
			1742	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/15/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/770,893

Applicant(s)

SONG, SHIHONG GARY

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 17-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/3/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :020304, 071504, 011607, 052704,050806,.

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DETAILED ACTION

Election/Restrictions

1. Claims 17-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method claims, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 12/13/2006.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 6,248,453).

Watson teaches an aluminum alloy with high strength and excellent thermal stability (column 4 line 31) comprising 10-70vol% $Al_3X L_{12}$ formers including Er, Yb, Ti (column 3 lines 5-8, column 6 lines 11-15), and ≥ 1 wt% one or more of Mg, Ag, Zn, Li, and Cu (column 2 lines 35-54) which form solid solution matrix with aluminum. Said composition overlaps the presently claimed ranges of Yb and Er, as well as 1+ minor element selected from Ti, Mg, Ag, Zn, and Cu (cl. 1-4, 10-13). Watson teaches that a plurality of dispersion particles form from said added elements, namely $Al_3X L_{12}$ particles are formed (abstract, etc).

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Concerning claims 10-13, Watson further teaches the alloy can be used for gas turbine engines where low weight is required and temperatures are on the order of 300°C (column 5 lines 46-50).

Because Watson teaches an overlapping alloy composition, it is held that Watson has created a prima facie case of obviousness of the presently claimed invention. Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility. Additionally, "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages," In re Peterson, 65 USPQ2d at 1379 (CAFC 2003).

4. Claims 1-5, 7, 8, 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashi et al (US 4,713,216).

Higashi teaches an aluminum alloy with excellent properties comprising 0.5-10% total one or more RE elements including Gd, Er, Yb, and Y (column 2 lines 31-32, 51) in order to improve the resistance to stress and corrosion and improve workability of said aluminum alloy (column 2 lines 38-40, 54-57), which overlaps the composition in instant claims 1, 4, 5, 7, 8, 10, 13-16. Said alloy also contains Zn, Mg, Mn, Cu in ranges that fall within the claimed "at least one minor element" ranges of instant claims 2, 3, 11, and 12 (see Table 4, Higashi at cl. 1 and 2).

Though Higashi does not specify that particles/precipitates are formed from said RE additives, Higashi does teach precipitation age hardening in said examples. Because the

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composition taught by Higashi overlaps the presently claimed composition, and because Higashi teaches precipitation age hardening step, then substantially the same precipitates are expected to form as in the instant case. Because Higashi teaches an overlapping alloy composition, it is held that Higashi has created a prima facie case of obviousness of the presently claimed invention.

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05.

Concerning claims 10-16, though Higashi does not mention using said alloy for gas turbine engine components, it would have been obvious to one of ordinary skill in the art to form the alloy taught by Higashi into gas turbine engine component, because Higashi teaches the Al-RE alloy has excellent mechanical properties, and improved resistance to stress and corrosion (column 2 line 40).

5. Claims 1-3, 7-12, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 570911 A1 (EP'911).

EP'911 teaches an aluminum alloy composition with $Al_aFe_bRE_cMn_d$, wherein $a=85-95at\%$, $b=2-8at\%$, $c=1-6at\%$, $d=0.5-6at\%$, and RE includes at least one element selected from a markush group including Y and Gd (page 3 lines 12-15), which overlaps the composition in claims 1-3, 7-12, 15, and 16. The composition of claim 9 of: 13-16wt% Gd and approx. 4wt% Y, converts to: 2.6-3.3at% Gd and approx. 1.4at% Y, balance aluminum, which falls within the alloy taught by EP'911. EP'911 further teaches intermetallic compounds are formed w RE elements, thereby resulting in increased hardness, strength, and toughness (column 2 line 25-26).

Because EP'911 teaches an overlapping alloy composition, it is held that EP'911 has created a prima facie case of obviousness of the presently claimed invention. Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05.

Concerning claims 10, 12, 15, 16, though EP'911 does not mention using said alloy for gas turbine engine components, it would have been obvious to one of ordinary skill in the art to form the alloy taught by EP'911 into gas turbine engine component, because EP'911 teaches the Al-RE alloy has excellent mechanical properties, such as increased hardness, strength, and toughness (column 2 line 25-26).

6. Claims 1-6 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al (US 2004/0055671A1).

Olson teaches aluminum alloys having improved strength characteristics at high temperatures said alloys comprising (in at%): 2-15at% Er, Yb, 2-7at% Ni, Co, Fe, Cu, <5at% Y [0013], which overlaps the composition in instant claims 1-6 and 10-14. The composition of claim 6 of: 13-16wt% Yb and approx. 4wt% Y, converts to: 2.3-3at% Yb and approx. 1.4at% Y, balance aluminum, which falls within the alloy taught by Olson. Olson further teaches intermetallic compounds are formed w RE elements to create cubic precipitates with high crystallographic symmetry, thereby resulting in an excellent combination of strength and toughness [0005], and said alloy are suitable for using for 'high' temperature applications of ~300 °C such as fan components for turbine engines [0003].

Because Olson teaches an overlapping alloy composition, it is held that Olson has created a prima facie case of obviousness of the presently claimed invention. Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05.

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Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCM
February 5, 2007

ROY KING
SUPERVISORY PATENT EXAMINER
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